**Amendments to the Claims:**

Misnumbered new claims 121-167 have been renumbered as new claims 122-168.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-121 (canceled)

122. (currently amended) A model pattern representing a training image of an object having an expected shape, the model pattern for use in geometric pattern matching with a run-time image having image boundary points, the model pattern comprising:

a geometric description of the expected shape of the object, the geometric description including a plurality of pattern boundary points in the training image of the object; and

a plurality of field elements disposed within a region of the training image that includes the boundary points.

123. (new) The model pattern of claim 122, wherein each field element comprises:

a vector indicating distance and direction to a nearest boundary point along a pattern boundary that includes at least some of the boundary points.

124. (new) The model pattern of claim 123, each field element further comprising:

a bit specifying whether a gradient direction at the nearest boundary point is in the same direction as the vector, or in a direction that is opposite to the direction of the vector.

125. (new) The model pattern of claim 123, each field element further comprising:

a gradient direction at the nearest boundary point.

126. (new) The model pattern of claim 123, wherein the vector is represented using a two's complement representation, the most significant bit being a sign bit.

127. (new) The model pattern of claim 126, wherein the vector is represented using a two's complement representation of 16 total bits, and the least significant 11 bits is to the right of the binary point.

128. (new) The model pattern of claim 125, wherein the gradient direction is represented as a 12-bit binary angle within a 360 degree range.

129. (new) The model pattern of claim 122, wherein each field element comprises:

an evaluation code for determining how an image boundary point is to be evaluated when it is mapped to a field position within a region associated with the field element.

130. (new) The model pattern of claim 129, wherein the evaluation code is a "don't care" code that specifies that the image boundary point is to be ignored.

131. (new) The model pattern of claim 129, wherein the evaluation code is an "expect blank" code that specifies that no image boundary point is expected within the region associated with the field element.

132. (new) The model pattern of claim 129, wherein the evaluation code is an "evaluate only" code that specifies that the image boundary point expected within the region associated with the field element is to be used for some purposes, but not for all purposes.

133. (currently amended) The model pattern of claim 129, wherein the evaluation code ~~is a "universal code" that~~ specifies that the image boundary point expected

within the region associated with the field element is to be used for ~~all purposes~~ at least localization and inspection.

134. (new) The model pattern of claim 129, wherein each field element includes a vector indicating distance and direction to a nearest boundary point along a pattern boundary that includes at least some of the boundary points, and wherein the evaluation code determines whether the vector is valid or undefined.

135. (new) The model pattern of claim 122, wherein each field element includes:

a vector indicating distance and direction to a nearest boundary point along a pattern boundary that includes at least some of the boundary points; and

a corner code for specifying whether a nearest boundary point is within a high-curvature portion of the pattern boundary, or within a low-curvature portion of the pattern boundary.

136. (new) The model pattern of claim 122, wherein each field element includes:

a polarity code for specifying whether evaluation of an image boundary point falling within the region associated with the field element should consider or ignore gradient direction associated with the field element.

137. (currently amended) The model pattern of claim 122, wherein the plurality of field elements ~~form~~ are in a plurality of zones, each zone ~~including field elements having~~ being characterized by a ~~common~~ code.

138. (currently amended) The model pattern of claim 137, wherein the ~~common~~ code is selected from the group consisting of: consider polarity, and ignore polarity.

139. (currently amended) The model pattern of claim 137, wherein the ~~common~~ code is selected from the group consisting of: high-curvature, and low-curvature.

140. (currently amended) The model pattern of claim 137, wherein the ~~common~~ code is selected from the group consisting of: care and don't-care.

141. (currently amended) The model pattern of claim 137, wherein the ~~common~~ code is selected from the group consisting of:

don't-care, expect-blank, use-for-some-purposes, and use-for-all-purposes.

142. (currently amended) The model pattern of claim 137, wherein the ~~common~~ code is selected from the group consisting of:

codes that render a vector of the field element valid, and codes that render a vector of the field element undefined.

143. (new) The model pattern of claim 142, where there are two types of codes that render a vector of the field element within the zone to be valid.

144. (new) The model pattern of claim 142, where there are two types of codes that render a vector of the field element within the zone to be undefined.

145. (new) The model pattern of claim 137, where there are two types of codes that indicate that an image boundary point is to be expected to fall within that zone.

146 (new) The model pattern of claim 137, where there is at least one type of code that indicates that an image boundary point is not to be expected to fall within that zone.

147. (new) The model pattern of claim 122, wherein each field element is represented as a 32-bit word.

148. (new) The model pattern of claim 122, wherein the field elements are arranged as a regular array having a grid spacing similar to the grid spacing of the run-time image.

149. (new) The model pattern of claim 122, wherein each field element comprises:

information that is stored as a function of position

150. (new) The model pattern of claim 149, wherein the information is stored as a function of real-valued position within the region of the training image that includes the boundary points.

151. (new) The model pattern of claim 149, wherein the information is stored at discrete points on a Arid using a two-dimensional array.

152. (currently amended) The model pattern of claim ~~152~~ 149, wherein the information is a vector-valued function of position within the region of the image that includes the boundary points.

153. (currently amended) The model pattern of claim ~~153~~ 152, wherein the vector-valued function relates a plurality of at least two-dimensional positions to a plurality of respective displacement vectors.

154. (currently amended) The model pattern of claim ~~152~~ 153, wherein each displacement vector indicates a distance and direction from a two-dimensional

position to a nearest point along a pattern boundary formed by the boundary points.

155. (currently amended) The model pattern of claim ~~155~~ 152, wherein the vector-valued function relates a plurality of two-dimensional positions and associated gradient directions to a plurality of respective displacement vectors.

156. (new) The model pattern of 155, wherein each displacement vector indicates distance and direction from a two-dimensional position to a nearest point along a pattern boundary that is substantially in the associated direction.

157. (currently amended) A model pattern representing a training image of an object having an expected shape, the model pattern for use in geometric pattern matching with a run-time image having image boundary points, the model pattern comprising:

a geometric description of the expected shape of the object, the geometric description including a plurality of pattern boundary points in the training image of the object; and

a plurality of zones, each zone being characterized by an evaluation code for determining ~~how~~ whether an image boundary point within the zone is to be evaluated.

158. (new) The model pattern of claim 157, wherein the evaluation code is a "don't care" code that specifies that an image boundary point within the zone is to be ignored.

159. (new) The model pattern of claim 157, wherein the evaluation code is an "expect blank" code that specifies that no image boundary point is expected within the zone.

160. (new) The model pattern of claim 157, wherein the evaluation code is an "evaluate only" code that specifies that the image boundary point within the zone is to be used for some purposes, but not for all purposes.

161. (currently amended) The model pattern of claim 157, wherein the evaluation code ~~is a "universal" code that~~ specifies that the image boundary point within the zone is to be used ~~for all purposes~~ at least for localization and inspection.

162. (currently amended) The model pattern of claim ~~162~~ 157, wherein the evaluation code is a polarity code for specifying whether evaluation of an image boundary point within the zone should consider or ignore polarity.

163. (new) The model pattern of claim 157, wherein to consider polarity is to consider gradient direction at the image boundary point.

164. (new) The model pattern of claim 157, wherein each zone includes at least one field element that includes the evaluation code.

165. (currently amended) The model pattern of claim 157, wherein the evaluation code is selected from the group consisting of: ~~care~~ attract, evaluate only, expect blank, and don't-care.

166. (new) The model pattern of claim 157, wherein the evaluation code is selected from the group consisting of: don't-care, expect-blank, use-for-some-purposes, and use-for-all-purposes.

167. (new) The model pattern of claim 157 wherein there are two types of evaluation codes that indicate that an image boundary point is to be expected to fall within the zone.

168. (new) The model pattern of claim 157, wherein there is at least one type of code that indicates that an image boundary point is not to be expected to fall within the zone.